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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,847	06/20/2003	Keith C. Hong	2002-008	8487
27569	7590	07/24/2007	EXAMINER	
PAUL AND PAUL 2000 MARKET STREET SUITE 2900 PHILADELPHIA, PA 19103			TSOY, ELENA	
ART UNIT		PAPER NUMBER		
		1762		
NOTIFICATION DATE		DELIVERY MODE		
07/24/2007		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)
	10/600,847	HONG ET AL.
	Examiner	Art Unit
	Elena Tsoy	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 14 June 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 3,4,7,11-20,23 and 26-41 is/are pending in the application.
 4a) Of the above claim(s) 26 and 27 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 3,4,7,11-20,23 and 28-41 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08).
Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Amendment filed on June 14, 2007 has been entered. Claims 5-6, 8, 21 have been cancelled. Claims 3, 4, 7, 11-20, 23, and 26-41 are pending in the application. Claims 26-27 remain being withdrawn from consideration as directed to a non-elected invention.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3, 4, 7, 11, 16-21, 23, 28-32, and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis (US 3,528,842) in view of Joedicke (US 4,378,408).

Skadulis in view of Joedicke is applied here for the same reasons as set forth in paragraph 2 of the Office Action mailed on 3/07/2007.

As to claims 3, 4, 7, 11, 16-21, and 23, Skadulis teaches a coating composition containing kaolin (which is known to be **aluminosilicate**) and sodium silicate, as required by Amendment.

Limitations of new claims 28-32, 36-41 would be obvious for the same reasons as for the claims 3, 4, 7, 11, 16-20, and 23.

3. Claims 3, 4, 7, 11, 16-21, 23, 28-32, and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Greenberg (US 3918407).

Skadulis in view of Greenberg is applied here for the same reasons as set forth in paragraph 3 of the Office Action mailed on 3/07/2007.

As to thickness limitations of claim 28, in a bi-layer granules of Skadulis, each layer is sufficiently porous to permit some moisture to permeate the same (i.e. both layers have very low porosity) (See column 3, lines 51-54). Obviously, a first layer of Skadulis should be thick enough to contain a sufficient amount of algicide. Therefore, it would be obvious to one of ordinary skill in the art to include a gas forming compound into a thick first layer using a method of Greenberg

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and control a release rate by adjusting a thickness of the outer layer, e.g. in claimed range, as required by Claim 28 depending on particular use of a final product.

4. Claims 12-13, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke '408/Skadulis in view of Greenberg/, and further in view of McMahon (US 3,507,676).

The cited prior art is applied here for the same reasons as set forth in paragraph 3 of the Office Action mailed on 3/2/2006.

Limitations of new claims 33 would be obvious for the same reasons as for the claims 12.

5. Claims 14-15, and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke '408/Skadulis in view of Greenberg/, and further in view of Hojaji et al (US 4,430,108).

The cited prior art is applied here for the same reasons as set forth in paragraph 5 of the Office Action mailed on 3/07/2007.

Limitations of new claims 34-35 would be obvious for the same reasons as for the claims 14-15.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Adsetts (US 4,145,400) is applied here to show that kaolin is aluminosilicate (See column 3, lines 26-27).

Response to Arguments

7. Applicants' arguments filed June 14, 2007 have been fully considered but they are not persuasive.

Claims 3-8, 11, 16-21, and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,528,842 ("Skadulis") in view of U.S. Patent 4,378,408 ("Joedicke"). This rejection is respectfully traversed, and reconsideration and withdrawal of the rejection are respectfully requested as applicable to the amended claims.

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(A) Applicants argue that the Examiner stated that the outer layer of Skadulis carrying no algaecide may be formed as a very thin layer so that it would not cover the color of the first layer. This is improper technical speculation on the part of the Examiner. There is nothing in the reference cited which supports the Examiner's speculation.

The Examiner respectfully disagrees with this argument. Joedicke teaches that the roofing granules may be coated in one or more coats with any desired amount of coating material and gas forming compound may be used in any one or more of the coatings (See column 5, lines 38-41). In other words, according to Joedicke, lightening of roofing granules can be achieved by inclusion of a gas forming compound into any layer of a multiple layers. Therefore, one of ordinary skill in the art would have reasonable expectation of success in achieving lightened roofing granules by inclusion of a gas-forming compound *either* into a first layer *or* outer layer with no preferences. Thus, it is irrelevant whether the Examiner's speculation is correct or not.

(B) Applicants argue that even if the Examiner's speculation were technically accurate and legally proper, it would not be applicable to applicants' new claims (28-41) which require that the second coating have a thickness of from about 2 micrometers to 25 micrometers (independent claim 28). The Examiner incorrectly characterized Skadulis as teaching that the appropriate pigments generally metal oxides such as titanium dioxide may be added to any layer (referencing Examples I-III; and column 3, lines 29-32), and also incorrectly stated that they may be added, for example, only to the first layer (referencing Example I) to impart the desired color to the coatings (referencing column 3, lines 29-32). Skadulis discloses the use of titanium oxide in the inner layer of two of his three examples (I and II), but omits titanium oxide completely from his third example. Nowhere does he say that appropriate pigments may be added to any layer.

The Examiner respectfully disagrees with this argument. First of all, Skadulis teaches that TiO_2 may be added to the coating compositions to impart the desired color to the coatings (See column 3, lines 29-32). Since Skadulis does not say to which layer the pigment should be added, it should be assumed that TiO_2 may be added to any layer. Patents are relevant as prior art for all they contain including prior art's broad disclosure. **Disclosed examples** and preferred embodiments **do not constitute a teaching away from a broader disclosure** or nonpreferred embodiments. See MPEP 2123.

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Secondly, according to Joedicke, lightening of roofing granules can be achieved by inclusion of a gas forming compound into any layer of a multiple layers.

(C) Applicants argue that the properly framed issue is not whether Joedicke is relevant to Skadulis, but whether Skadulis and Joedicke are relevant to the presently claimed invention. The Examiner's response to Dr. Hong's point that the combination of Skadulis and Joedicke would not be relevant to the production of dark-colored granules is similarly off the point.

The Examiner respectfully disagrees with this argument. First of all, claims do not require dark colored granules. Secondly, it is held that rationale different from applicant is permissible. The reason or motivation to modify the reference may often suggest what the inventor has done, but for a *different purpose or to solve a different problem*. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. See MPEP 2144.

Claims 3-8, 11, 16-21, 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 3,528,842 ("Skadulis") in view of U.S. Patent 3,918,407 ("Greenberg"). This rejection is also respectfully traversed, and reconsideration and withdrawal of the rejection are respectfully requested as applicable to the amended claims.

(A) Applicants argue that the Examiner's rejection is improper because (1) Greenberg is nonanalogous art, and (2) the rejection is simply an unsuccessful attempt at reconstruction of applicants' invention guided by hindsight. Greenberg discloses an invention that "relates to the control of fleas on warm blooded animals, such as dogs and cats, by application of an insecticidal gas generation device." (col. 1, lines 3-6) Greenberg is presently classified in U.S. class 119, "animal husbandry." The present application has been classified in U.S. class 52, "static structures (e.g., buildings)." These arts are wholly unrelated. Greenberg is not from the same field of endeavor: Greenberg discloses a flea collar for pets, the present invention relates to roofing granules and roofing materials. Greenberg is not reasonably pertinent to the particular problem with which the inventor is involved: the particular problem of the invention at hand involves algae growth on roofs by release of sparingly soluble metal ions, Greenberg does not attempt to resolve any such problem, but rather the problem of continuous release of a volatile gaseous insecticide having a low vapor pressure from plastic flea collars.

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The argument is unconvincing. First of all, it is well settled that references don't have to be classified by the PTO in the same class to be pertinent. In re Mlot Fijalkowski 213 USPQ 713 (Fed. Cir. 1982). Secondly, Greenberg is reasonably pertinent to the particular problem with which the inventor is involved: claimed invention relates to a problem of releasing a toxicant through carrier pores, Greenberg resolves the same problem of releasing toxicant through carrier pores. Therefore, Greenberg is reasonably pertinent to the particular problem with which the applicant was concerned. Thus, in contrast to Applicants argument, Greenberg is analogous art. It should be noted that the art related to a controlled release of active substance does not differentiate what is being released from a porous carrier: drugs, nutrients, plant growth regulators, fertilizers, biocides, insecticides, pesticides, pheromones, germicides, and such common uses as room deodorizers, pool chlorinators, flavors, fragrances and insect repellents, as evidenced by Herbig et al (US 5876752) teaching devices for controlled release of active substances that can vary widely in nature such as drugs, nutrients, plant growth regulators, fertilizers, biocides, insecticides, pesticides, pheromones, germicides, and such common uses as room deodorizers, pool chlorinators, flavors, fragrances and insect repellents (See column 7, lines 11-17) in the form of tablets, capsules and beads comprised of a porous substructure surrounded by one or more interfacial membranes which can be used in considerably different environments including human and animal bodies, soil, plant surfaces, air, aqueous medium and foods and beverages (See column 7, lines 8-10).

(B) Applicants argue that the combination of Skadulis and Greenberg does not even meet the limitations of applicants' presently claimed invention, but rather teaches one of ordinary skill in the art away from that invention. Greenberg solves his (unrelated) problem by increasing the **surface porosity** of the flea collars (col. 5, lines 17-28): "The main function of the additive is to provide a surface porosity which preferably includes pores extending part way down into the body of the collar." This is achieved by employing an additive which has a boiling point at or below the curing temperature of the polyvinylchloride resin. Adding some low boiling additive to increase the surface porosity of roofing granules would not provide the presently claimed invention - the porosity of the outer layer that forms the surface would be increased - not that of the inner layer. Thus, the combination of Skadulis and Greenberg fails to establish a *prima facie* case of obviousness.

The Examiner respectfully disagrees with this argument. Greenberg teaches controlled release of toxicant (See column 1, lines 9-12) from a **single** layer of resin by controlling texture and porosity of a solid heat-cured carrier by incorporating into carrier before heat-curing a predetermined amount of heat decomposable gas forming particles (See column 3, lines 55-64; column 7, lines 66-67). Greenberg broadly teaches that the internal porosity, texture and surface porosity of the carrier must be sufficiently coordinated to allow a sufficient release of the toxicant from the carrier (See column 3, lines 58-61).

One of ordinary skill in the art would easily recognize that release rate from a bi-layer can be controlled by adjusting porosity and thickness of each layer since the thicker and less porous layer the less release rate would be, as evidenced by Arnold (US 3961628) showing that rate of diffusion of an active substance through a diffusive medium drug **generally** dependent on the solubility of the drug in the diffusive medium, the ***thickness and porosity*** of the release rate controlling material and the tortuosity factor (See column 6, lines 53-58) and Smith et al (US 5888930) showing that the rate of release of active ingredients from microporous beads may be controlled largely by the rate of diffusion through the relatively dense "skin" at the surface of each bead: increasing the thickness of this skin or reducing its porosity generally lowers the permeability of an active ingredient through the skin, and so lowers its release rate (See column 7, lines 46-51). In a bi-layer granules of Skadulis, each layer is sufficiently porous to permit some moisture to permeate the same (i.e. both layers have very low porosity) (See column 3, lines 51-54). Obviously, a first layer of Skadulis should be thick enough to contain a sufficient amount of algicide. Therefore, it would be obvious to one of ordinary skill in the art to include a gas forming compound into a thick first layer using a method of Greenberg and control a release rate by adjusting a thickness of the outer layer which could be in claimed range, as required by Claim 28 depending on particular use of a final product.

Rejection of Claims 12 and 13 Under 35 U.S.C. 103(a) Claims 12 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke, or Skadulis in view of Greenberg, and further in view U.S. 3,507,676 ("McMahon").

Applicants argue that the cited combination of references does not make out a *prima facie* case of obviousness with respect to the presently claimed invention. Even were the references

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combined as suggested by the Examiner, there would be nothing to teach or suggest to one of ordinary skill in the art to include void-forming material in the inner coating layer but not in the outer coating layer of dark colored roofing granules containing cuprous oxide, or to the inner coating layer of roofing granules have an opaque outer layer. McMahon does not add anything to the combination of Skadulis in view of Joedicke in this regard, or to Skadulis in view of Greenberg. Accordingly, reconsideration and withdrawal of the rejection of claims 12 and 13 entered over Skadulis in view of Joedicke, or Skadulis in view of Greenberg, and further in view of McMahon, as applicable to the amended claims, are respectfully requested for this reason.

The Examiner respectfully disagrees with this argument. First of all, the Applicants' statement "**outer** coating layer of **dark** colored roofing granules containing cuprous oxide" is incorrect. The Examiner specifically pointed out in the previous Office Action, "Water-insoluble algicidal copper compounds such as Cu₂O (claimed cuprous oxide) in an amount of 2 wt % (See column 4, line 39) may be added to the coating composition of the first layer (claimed first intermediate particles) (See **Example III**) *or* of the second layer (claimed second intermediate particles) (See Example I)" (See paragraph 2 of the Office Action mailed on 3/07/2007).

As to the "an opaque outer layer", as was discussed above, Skadulis *broadly* teaches that TiO₂ may be added to *any* layer, and Joedicke teaches that lightening of roofing granules can be achieved by inclusion of a gas forming compound into any layer of a multiple layers. Therefore, references provide a support for obviousness no matter whether the Examiner's speculations are correct or not.

Claims 14-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Skadulis in view of Joedicke or Skadulis in view of Greenberg, and further in view of U.S. Patent 4,430,108 ("Hojaji"). Applicants argue that Hojaji does not supply the teaching or suggestion missing from the combination of Skadulis and Joedicke, or of Skadulis and Greenberg, that void-forming material be included in the inner layer composition but excluded from the outer layer composition in either a dark-colored composition including cuprous oxide or a roofing granule with an opaque outer layer. Consequently, the cited combination of prior art references does not make a prima facie case of obviousness of the claims as presently amended.

The Examiner respectfully disagrees with this argument for the reasons discussed above.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

July 15, 2007

ELENA TSOY
PRIMARY EXAMINER
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